

## Overall Weather Outlook

Current upper level wave pattern (as of 0Z on October 28) consists of a strong trough over the West Coast and a strong ridge whose axis is along the Mississippi river. Though similar to yesterday's situation, the ridge has in fact retrograded slightly. Still, the short wave that is amplifying this large scale trough ridge pattern is moving out of the west coast. By 18Z Friday (tomorrow) the surface low will be over eastern South Dakota. At upper levels the low will be over western South Dakota. The effect is to flatten the large scale ridge pattern over our area. The local weather implications for tomorrow, however, are minimal, with only a 20% chance of showers called for, as most of the dynamics stays north of us. The large scale trough over the west coast starts to move eastward early Saturday. The final ridge breakdown, however, will not occur until Monday, when a major trough will move through. Timing is difficult at this early stage, but the weather should start to deteriorate Sunday night, with a chance of severe weather on Monday. Shower and thundershower probabilities go up to 50%. It may not be a great day for flying. Regarding local weather for Saturday and Sunday, we certainly will have a greater chance of rain than tomorrow, but still well under fifty percent. Winds should be similar to Friday, with a more westerly direction to those winds on Saturday than Friday or Sunday.

PV feature of interest for tomorrow's flight.

Tomorrow's flight will examine a feature in the potential vorticity of the lower stratosphere, which is shown in the first plot following this text. This feature, centered roughly south of the four corners of Kansas, Oklahoma, Missouri, and Arkansas, has not "moved" significantly since yesterday's forecast.

Clouds and RH through Sunday:

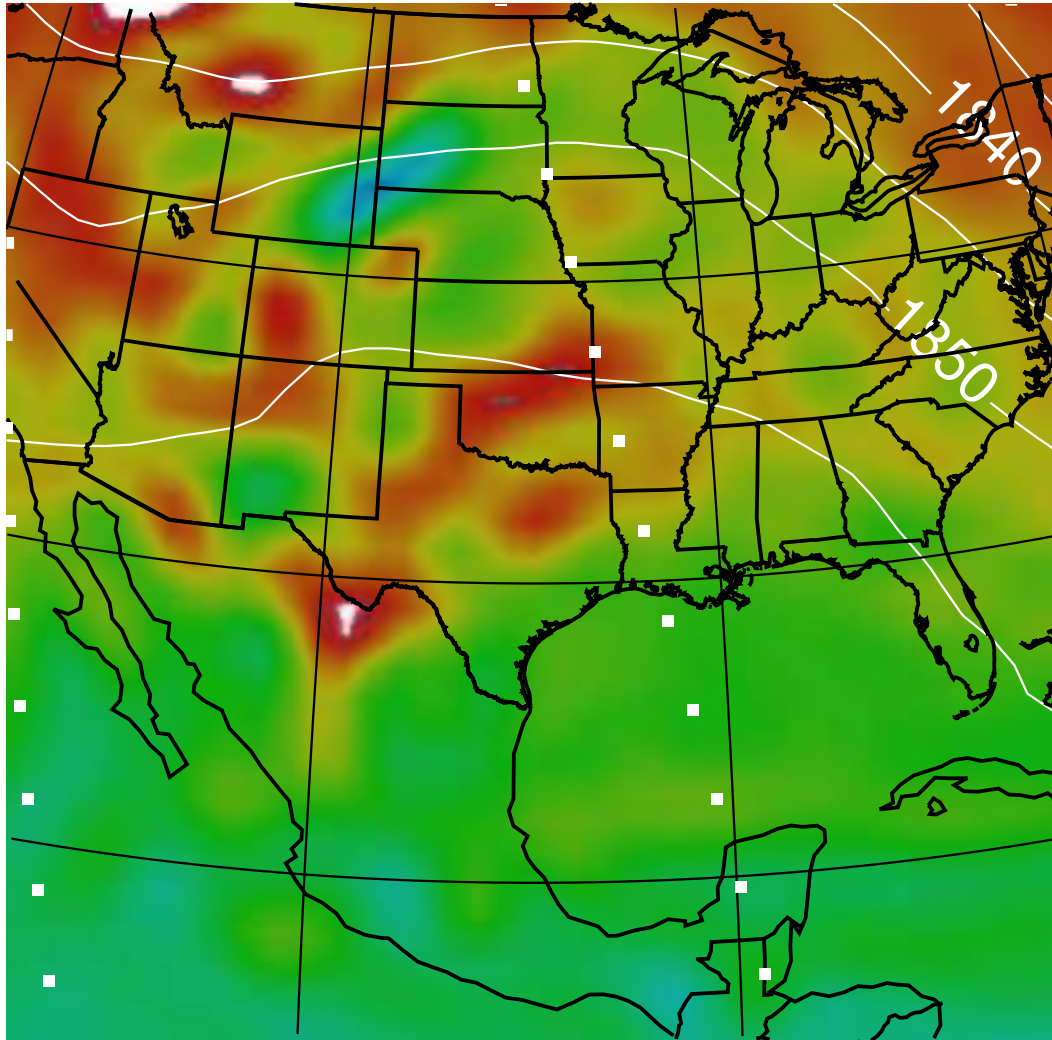
Low levels (second through fourth plots following text): For tomorrow, we expect clouds associated with high relative humidity (typically when relative humidity exceeds 80% on a large scale, we expect clouds) to be found over the four corners region mentioned above. This band is associated with the South Dakota low mentioned above (which you can see in the plot. We expect the Louisiana/northern Gulf section of the flight track (basically following just east of the satellite underpass shown in the plot) to be clear. By Saturday the low level band of relative humidity is further south and weaker. This is what will be responsible for the increased chance of shower activity on Saturday. Because of the unfavorable overpass locations, we will probably not fly on this day. Sunday looks less favorable than Friday for clouds. Though extended decks are not likely over the Gulf, we should get lots of puffies. Vertical velocities (upward are red contours) are also not favorable. The low level cloud forecast (not shown) shows minimal cloud over Mississippi, with greater chances over the Gulf. Missouri should be quite clear.

Mid levels (next two plots): The front over Arkansas is not very moist at levels higher than 850mb for tomorrow. Expect maybe some light cirrus along the orbit track.

Skipping Saturday, the Gulf looks dry at mid levels for Sunday. The approaching major trough from the west can be seen with all its glory (!) at this level, with strong vertical motion (upward) and high relative humidity over Arkansas and southern Missouri. Don't expect too big a clear spot north of there at these levels.

Upper levels (next four plots): For tomorrow, relative humidities are low along most of the track, though we might expect some cirrus over the northern Gulf (which we are not flying over) and northern Arkansas. For Sunday, the cloud region over the continental portion of the AURA underpass is even more massive, but the Gulf looks good.

18 UTC on 29 October, 2004 at 70.0 mb

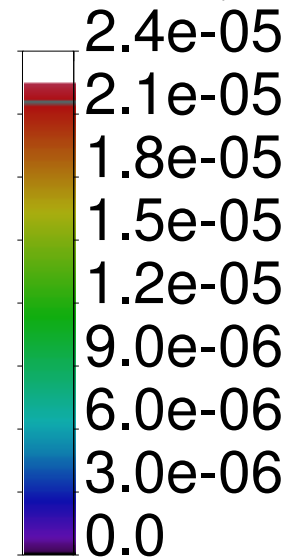


NMC, Grid: GG1X1

Seq: E01, Spec: SAVN170L42

42 hr fost

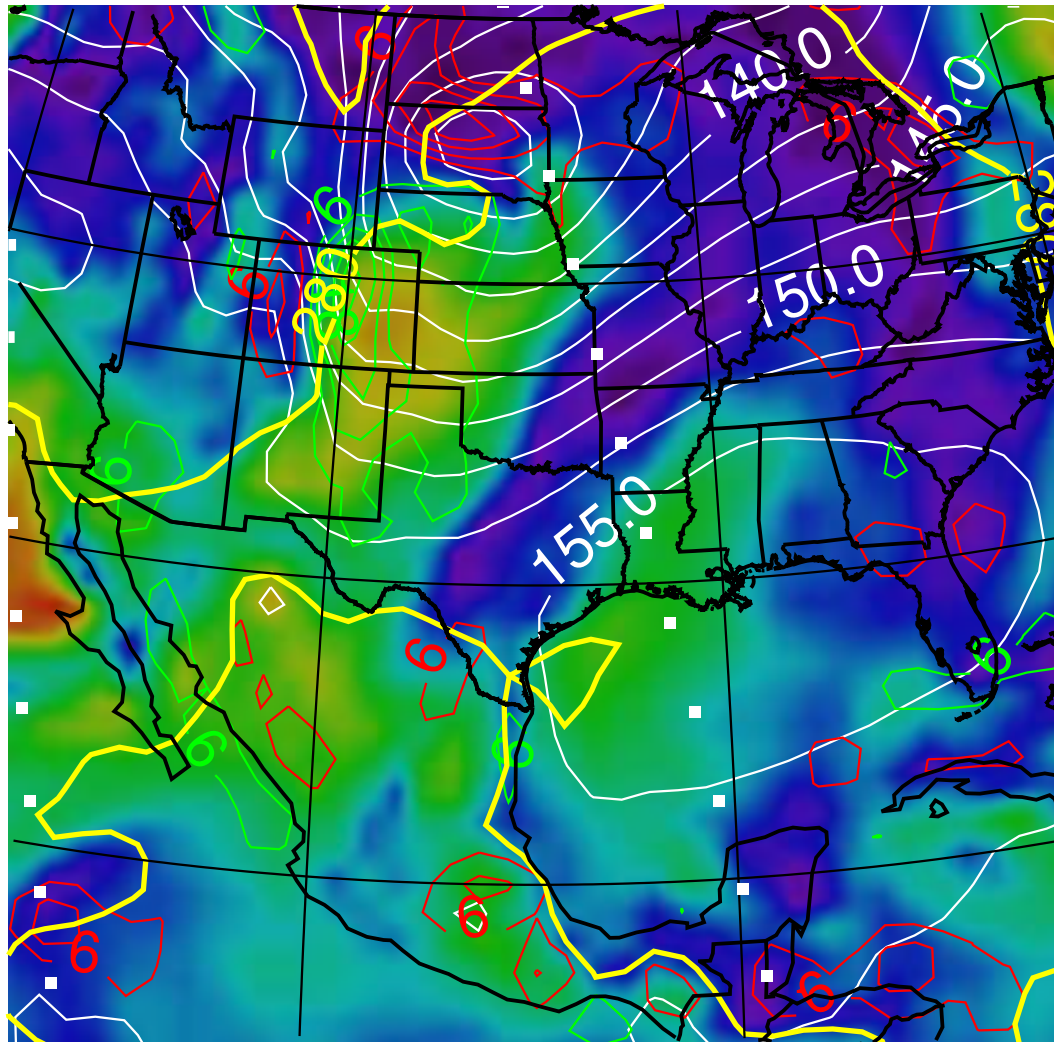
EPV at 70 MB ( $\text{K m}^2/\text{kg s}$ )



Z (dam)

Trop (EPV=2.5)

18 UTC on 29 October, 2004 at 850.0 mb

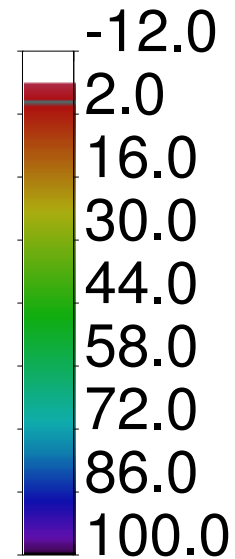


NMC, Grid: GG1X1

Seq: E01, Spec: SAVN170L42

42 hr fost

RH at 850 MB (%)



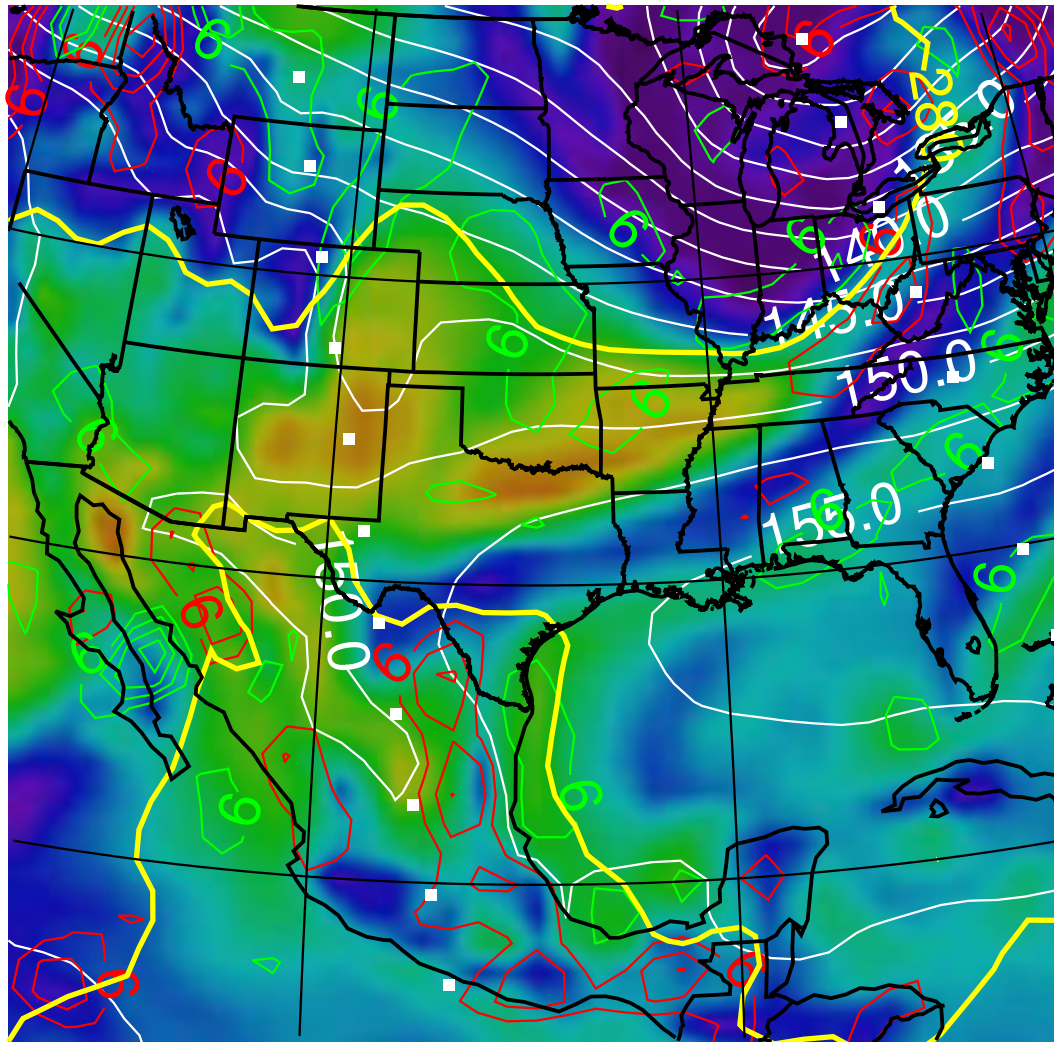
Z (dam)

Ascent (6 mb/hr)

Descent (6 mb/hr)

T (K)

00 UTC on 31 October, 2004 at 850.0 mb

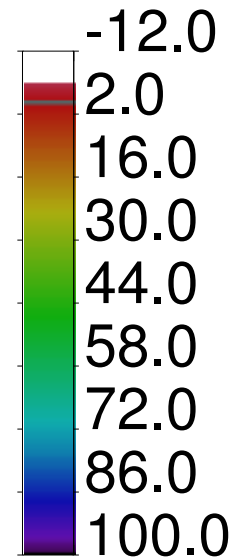


NMC, Grid: GG1X1

Seq: E01, Spec: SAVN170L42

72 hr fost

RH at 850 MB (%)



Z (dam)

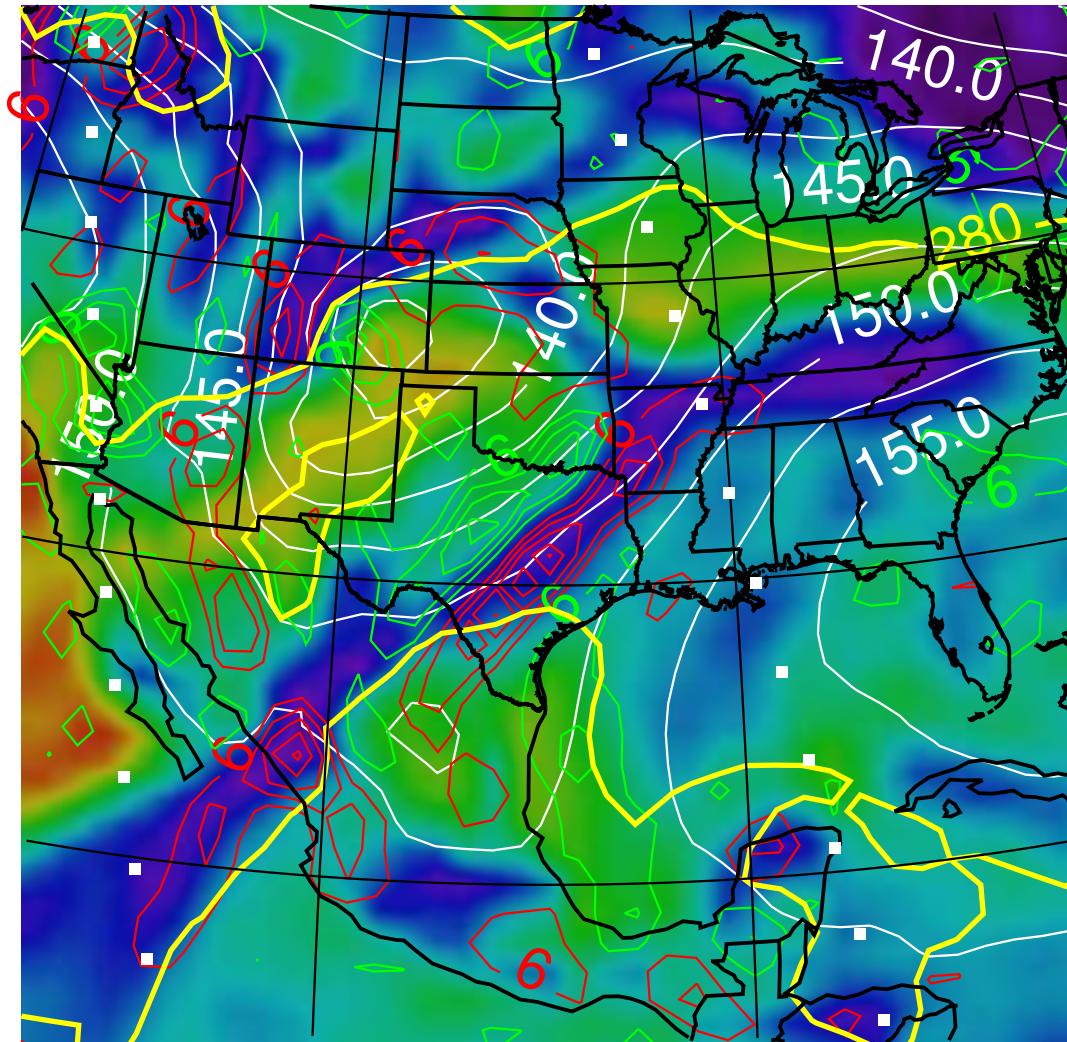
Ascent (6 mb/hr)

Descent (6 mb/hr)

T (K)



00 UTC on 1 November, 2004 at 850.0 mb

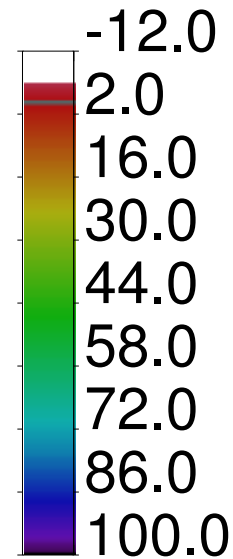


NMC, Grid: GG1X1

Seq: E01, Spec: SAVN170L42

120 hr fcst

RH at 850 MB (%)



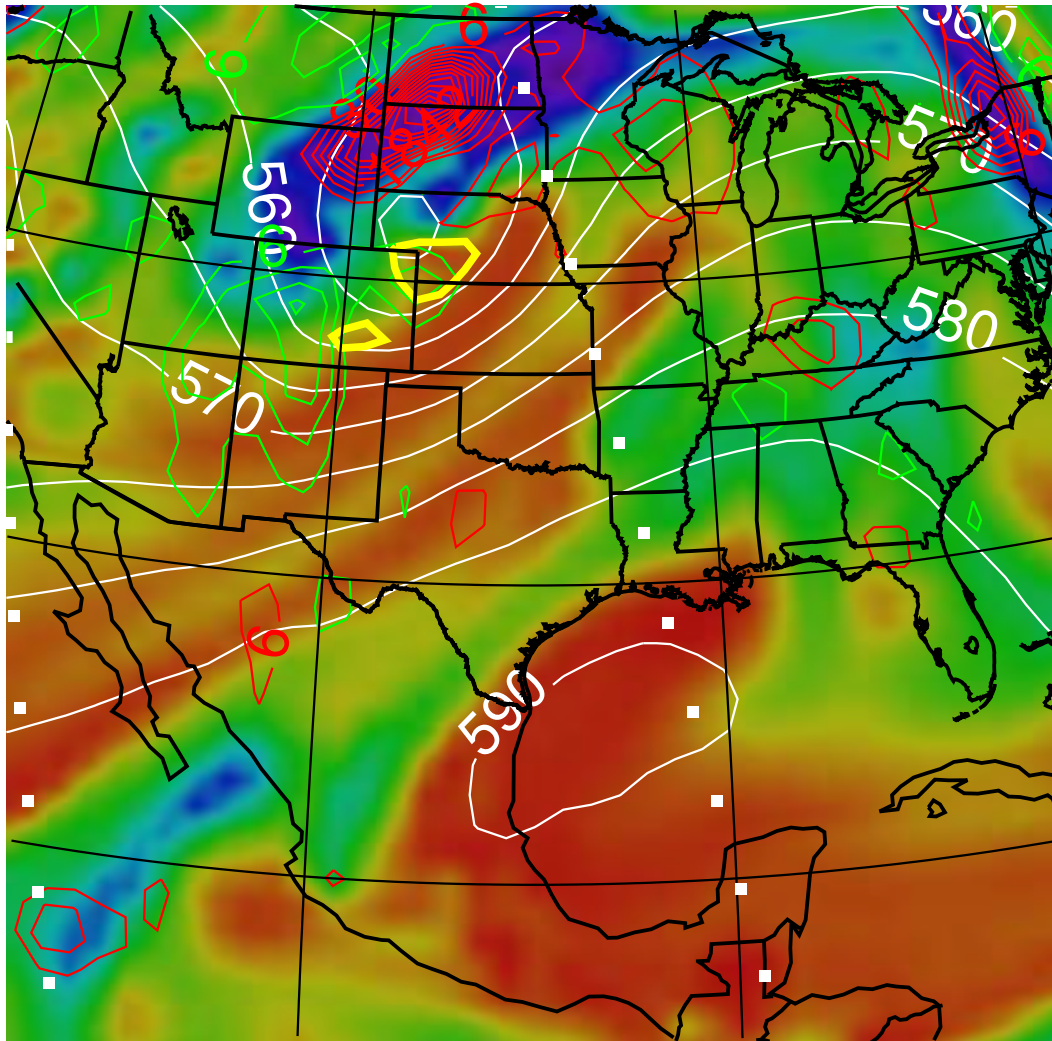
Z (dam)

Ascent (6 mb/hr)

Descent (6 mb/hr)

T (K)

18 UTC on 29 October, 2004 at 500.0 mb

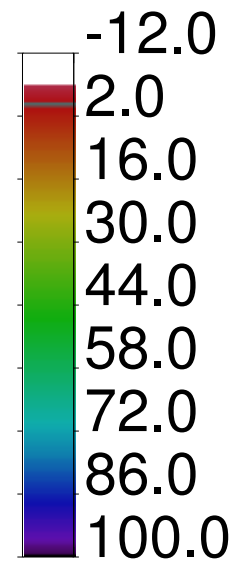


NMC, Grid: GG1X1

Seq: E01, Spec: SAVN170L42

42 hr fost

RH at 500 MB (%)



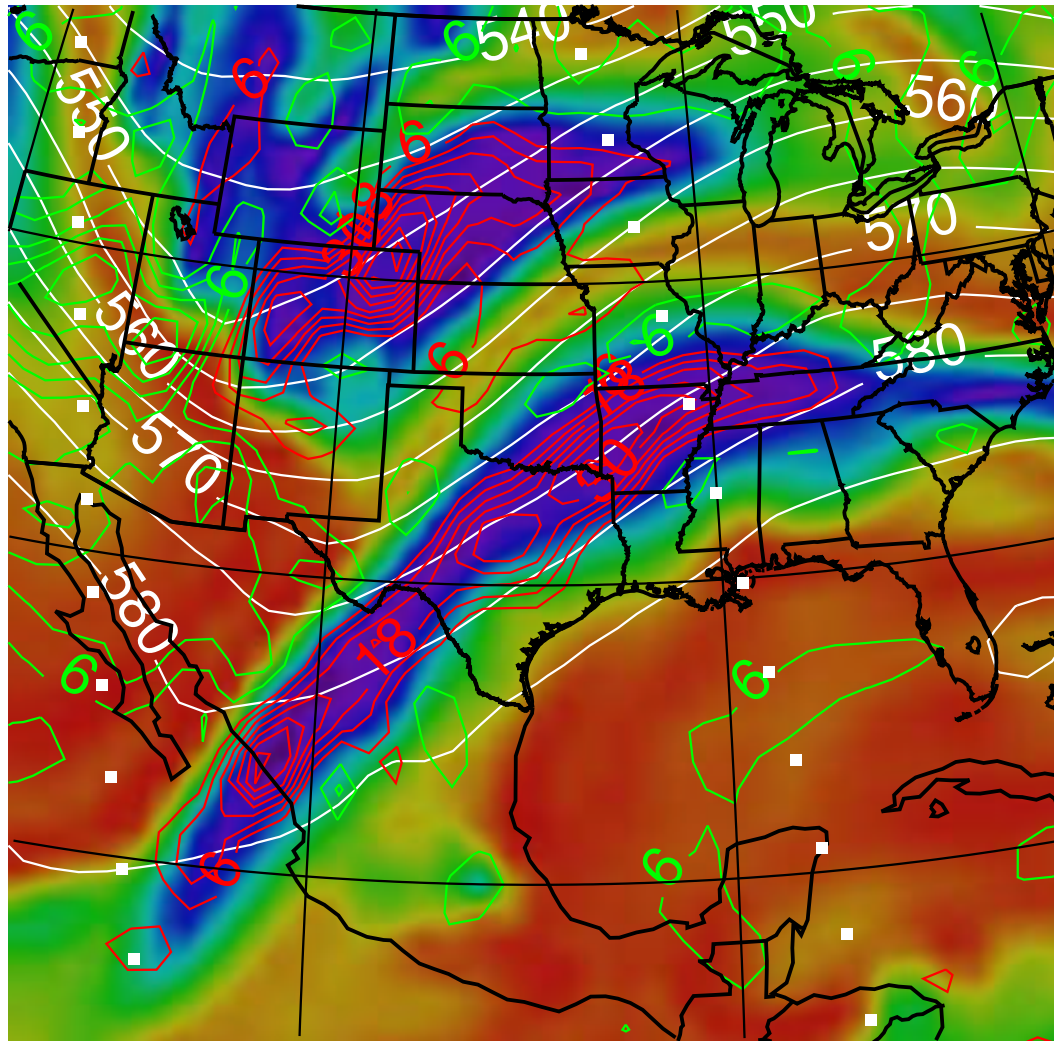
Z (dam)

Ascent (6 mb/hr)

Descent (6 mb/hr)

Trop (EPV=2.5)

00 UTC on 1 November, 2004 at 500.0 mb

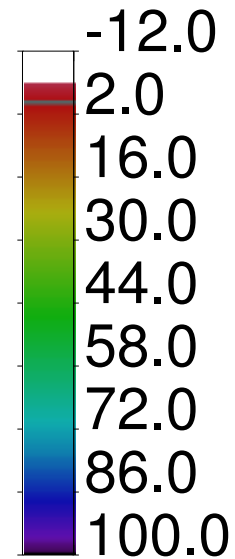


NMC, Grid: GG1X1

Seq: E01, Spec: SAVN170L42

120 hr fcst

RH at 500 MB (%)



Z (dam)

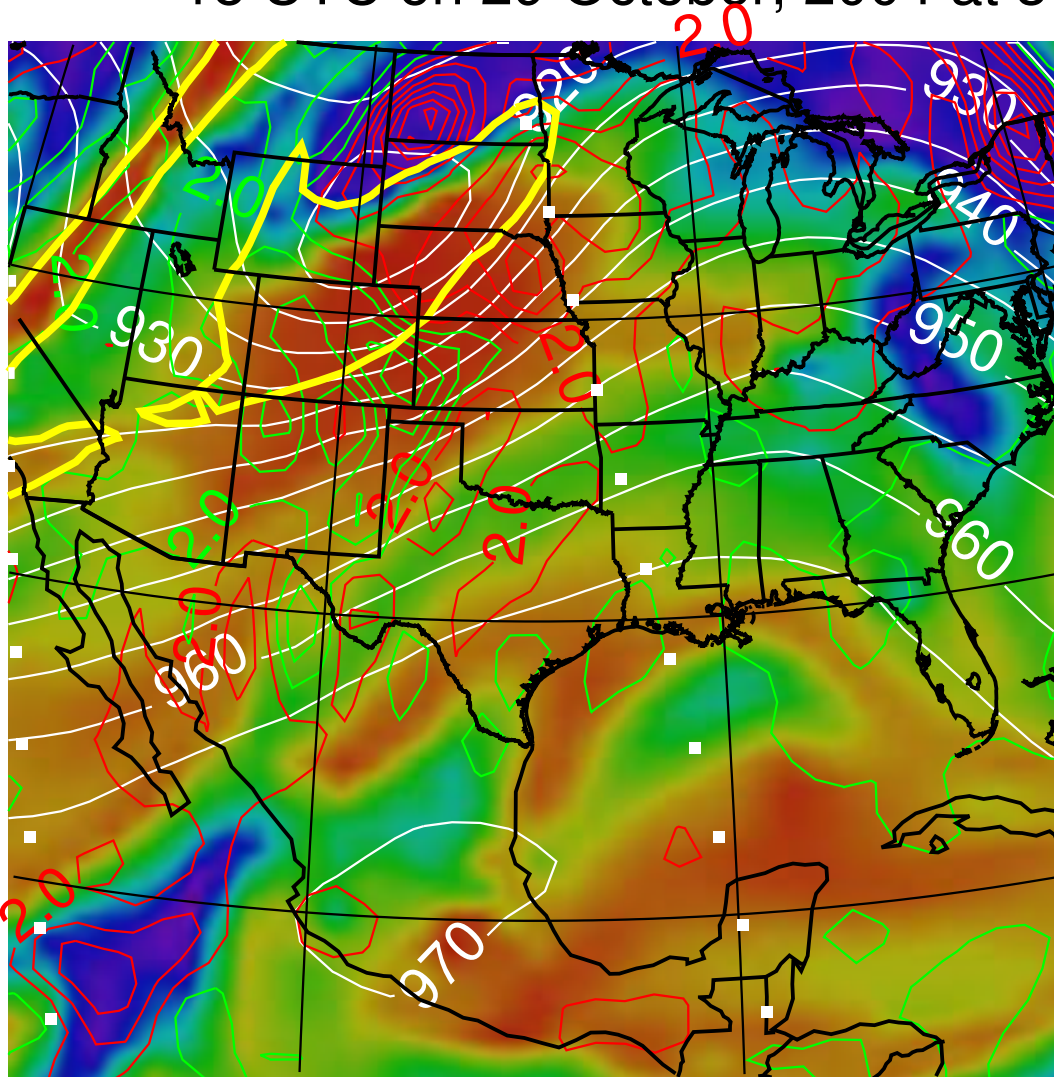
Ascent (6 mb/hr)

Descent (6 mb/hr)

Trop (EPV=2.5)



18 UTC on 29 October, 2004 at 300.0 mb

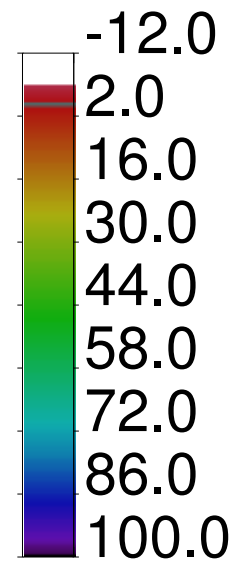


NMC, Grid: GG1X1

Seq: E01, Spec: SAVN170L42

42 hr fost

RH at 300 MB (%)



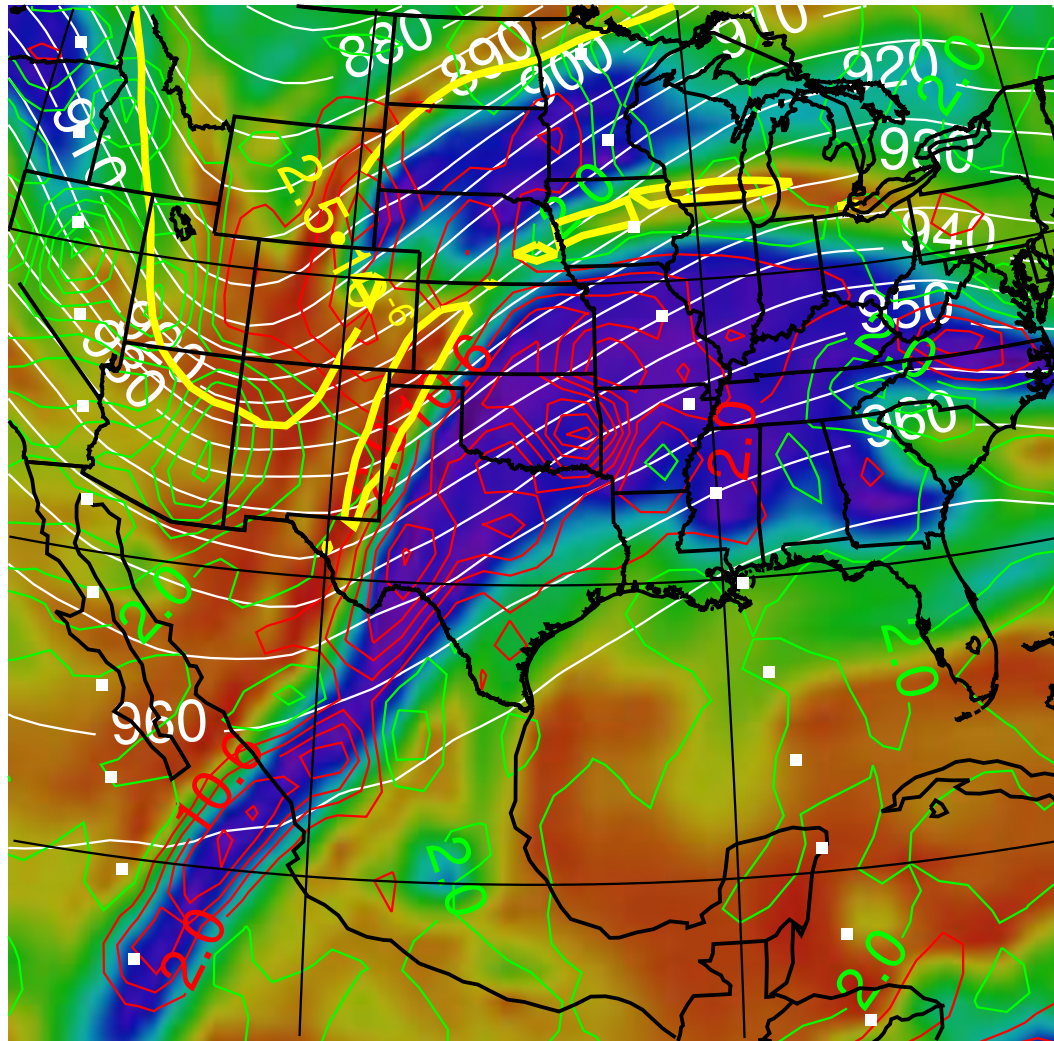
Z (dam)

Ascent (4 mb/hr)

Descent (4 mb/hr)

Trop (EPV=2.5)

00 UTC on 1 November, 2004 at 300.0 mb

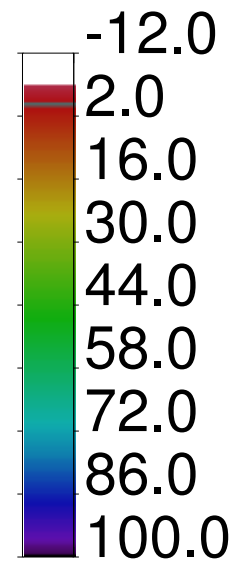


NMC, Grid: GG1X1

Seq: E01, Spec: SAVN170L42

120 hr fcst

RH at 300 MB (%)



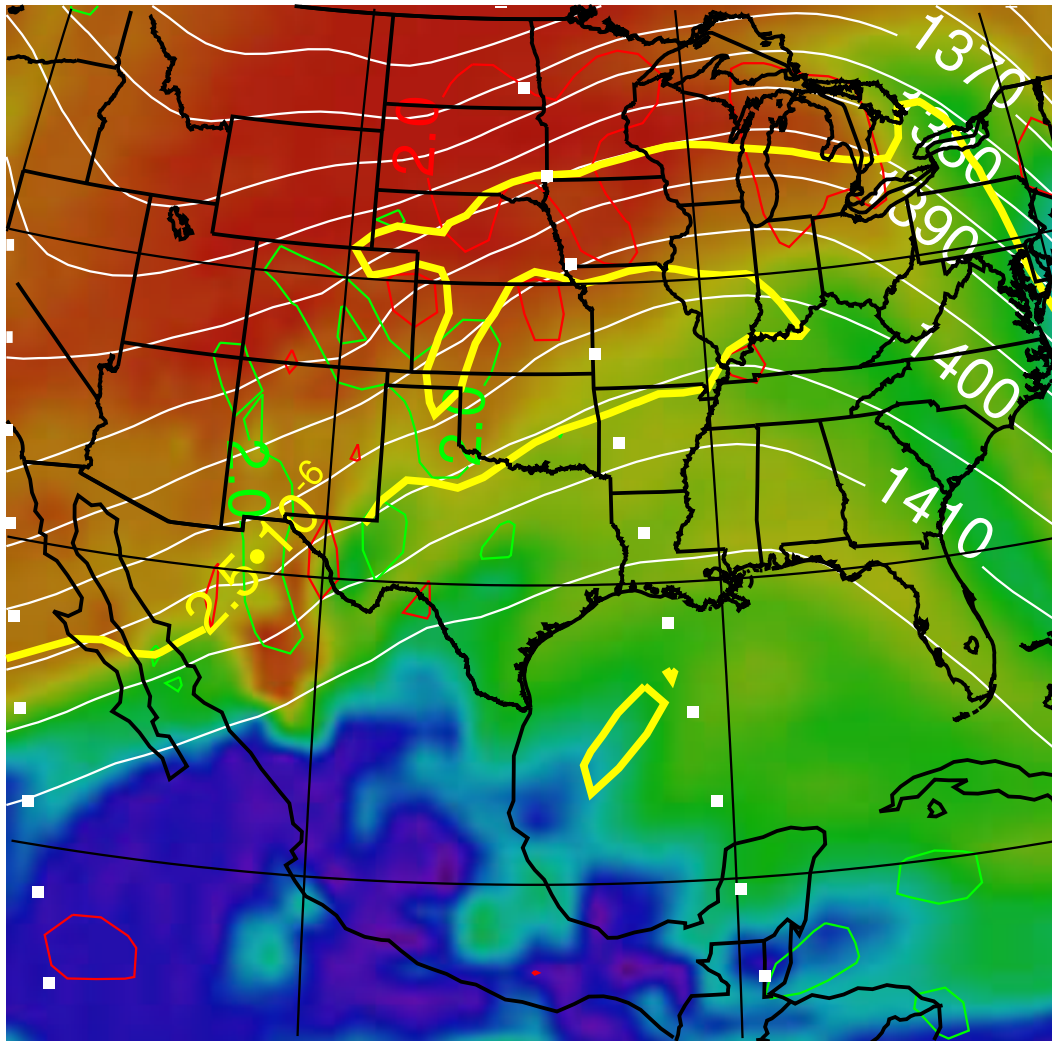
Z (dam)

Ascent (4 mb/hr)

Descent (4 mb/hr)

Trop (EPV=2.5)

18 UTC on 29 October, 2004 at 150.0 mb

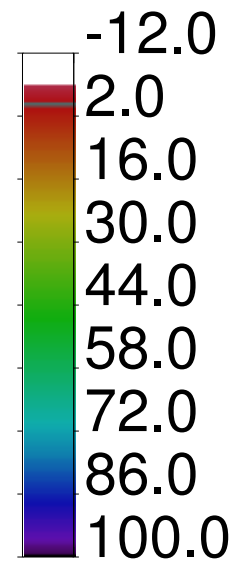


NMC, Grid: GG1X1

Seq: E01, Spec: SAVN170L42

42 hr fost

RH at 150 MB (%)



Z (dam)

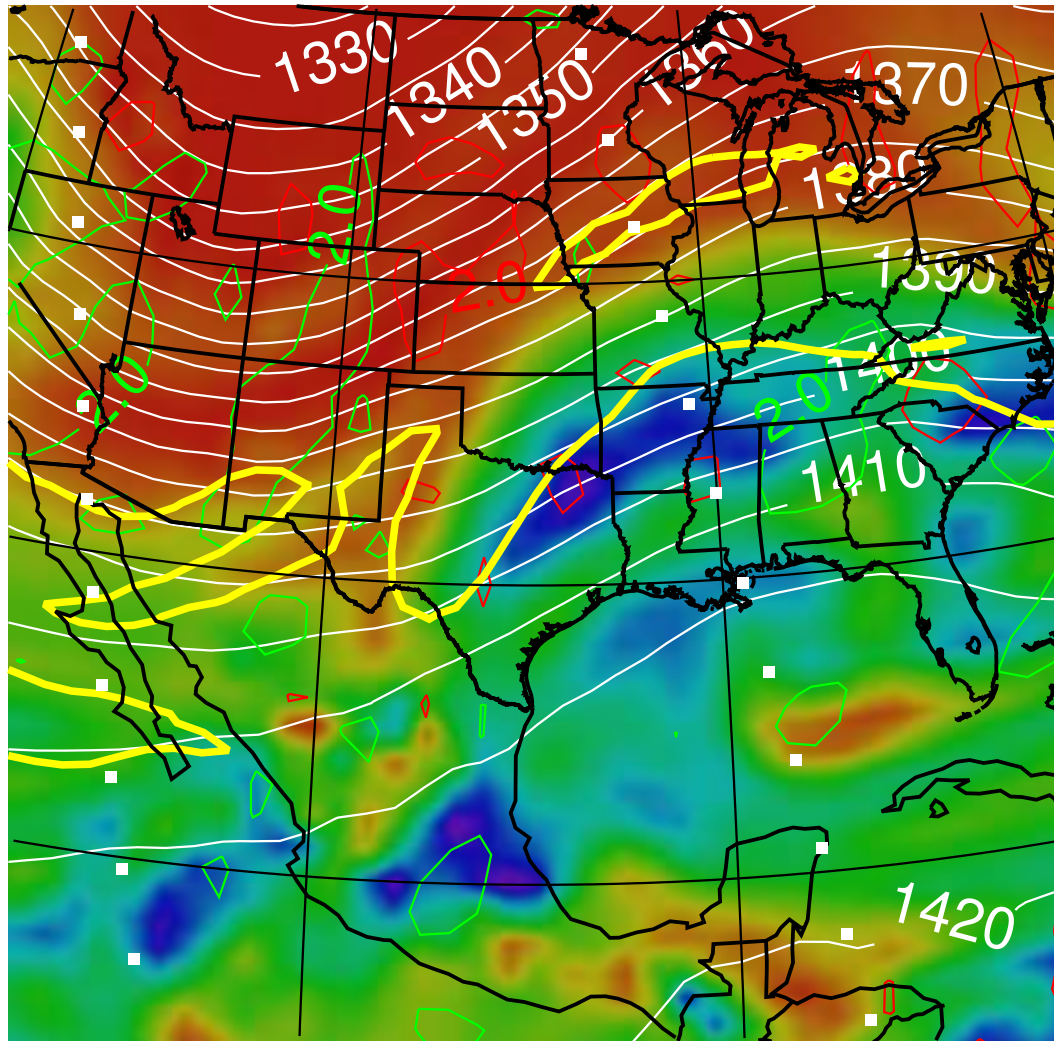
Ascent (4 mb/hr)

Descent (4 mb/hr)

Trop (EPV=2.5)



00 UTC on 1 November, 2004 at 150.0 mb

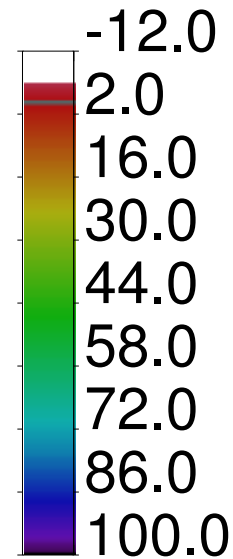


NMC, Grid: GG1X1

Seq: E01, Spec: SAVN170L42

120 hr fcst

RH at 150 MB (%)



Z (dam)

Ascent (4 mb/hr)

Descent (4 mb/hr)

Trop (EPV=2.5)